

AMENDMENTS TO THE CLAIMS

1 1-2. (Cancelled)

1 3. (Currently Amended) A system including  
2 an input port for receiving network packets;  
3 a sampling element for selecting a fraction of those packets for review, said  
4 sampling element including a feedback element for adaptively altering said fraction;  
5 a queue of selected packets;  
6 a packet-type detector to detect packets of a particular type, said packet type detector  
7 coupled to said queue; and  
8 a frequency measurement element to determine an expected frequency of a particular  
9 packet type, said frequency measurement element coupled to said packet-type detector;  
10 wherein said feedback element is responsive to a length of said queue.

1 4. (Cancelled)

1 5. (Original) A system as in claim 3, wherein said feedback element is responsive  
2 to a load on said frequency measurement element.

1 6. (Original) A system as in claim 3, wherein said feedback element is responsive  
2 to a frequency measure determined by said frequency measurement element.

1           7. (Previously Amended) A method, including steps for sampling a set of packets at  
2     a network interface of a switch, said steps for sampling including steps for adaptively  
3     altering a fraction of said packets for selection;  
  
4     wherein said steps for adaptively altering a fraction of said packets for selection include  
5           steps for  
6                     maintaining a queue of selected packets; and  
7                     altering said fraction in response to a length of said queue.

1           8. (Cancelled)

1           9. (Original) A method as in claim 7, wherein said steps for adaptively altering a  
2     fraction of said packets for selection include steps for  
3     measuring a frequency of packets of a known type within said selected packets;  
4     altering said fraction in response to a load imposed by said steps for measuring.

1           10. (Original) A method as in claim 7, wherein said steps for adaptively altering a  
2     fraction of said packets for selection include steps for altering said fraction in response to  
3     two or more factors responsive to said selected packets.

1           11. (Original) A method as in claim 7, including steps for determining a frequency of  
2     packets of a known type within said selected packets.

1           12. (Original) A method as in claim 11, including steps for determining an error  
2     range for said measured frequency.

1           13. (Original) A method as in claim 11, including steps for  
2           setting a control parameter;  
3                   sampling said received packets in response to said control parameter, to  
4   provide a queue of sampled packets;  
5           comparing a length of said queue with a threshold;  
6           altering said control parameter in response to said threshold.

1           14. (Original) A method as in claim 13, wherein said control parameter is a fraction  
2   of said received packets to sampled for said queue.

1           15. (Original) A method as in claim 13, wherein said threshold includes at least one  
2   of: a lower bound for said length, an upper bound for said length.

1           16. (Original) A method as in claim 13, wherein said threshold includes a lower  
2   bound for said length and said steps for altering said control parameter operate to lengthen  
3   said queue in response to said steps for comparing.

1           17. (Original) A method as in claim 13, wherein said control parameter is a fraction  
2   of said received packets to sample for said queue;  
3           said threshold includes a lower bound for said length; and  
4           said steps for altering said control parameter decrease said control parameter in  
5   response to said steps for comparing.

1           18. (Original) A method as in claim 13, wherein said threshold includes an upper  
2 bound for said length and said steps for altering said control parameter operate to shorten  
3 said queue in response to said steps for comparing.

1           19. (Original) A method as in claim 13, wherein  
2 said control parameter is a fraction of said received packets to sample for said queue;  
3 said threshold includes an upper bound for said length; and  
4 said steps for altering said control parameter increase said control parameter in  
5 response to said steps for comparing.

1           20. (Original) A method as in claim 13, wherein said steps for altering said control  
2 parameter operate to maintain said control parameter constant for at least a selected number  
3 of sampled packets.

1           21. (Original) A method as in claim 13, wherein said steps for sampling do not  
2 produce skew.

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1           22. (Currently Amended) A system including  
2                   means for collecting aggregate information about network traffic;  
3                   means for maintaining processor load relatively constant for a processor  
4 controlling said means for collecting despite substantial variation in network traffic;  
5                   wherein said means for collecting and said means for maintaining include an  
6 input port for receiving network packets, a sampling element for selecting a fraction of those  
7 packets for review, said sampling element including a feedback element for adaptively

8 altering said fraction, a queue of selected packets, a packet-type detector to detect packets  
9 of a particular type, said packet-type detector coupled to said queue, and a frequency  
10 measurement element to determine an expected frequency of a particular packet type, said  
11 frequency measurement element coupled to said packet-type detector; and  
12 wherein said feedback element is responsive to a length of said queue.

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1 23. (Previously Added) A system as in claim 3, wherein a default value for said  
2 fraction is selected response to a bandwidth of said input type.

1 24. (Previously Added) A system as in claim 23, wherein said fraction is adaptively  
2 altered based on a presence or absence of a particular type of packet selected from among  
3 plural types of packets.

1 25. (Previously Added) A method as in claim 7, wherein a default value for said  
2 fraction is selected response to a bandwidth of said network interface.

1 26. (Previously Added) A method as in claim 25, wherein said fraction is adaptively  
2 altered based on a presence or absence of a particular type of packet selected from among  
3 plural types of packets.

1 27. (Previously Added) A system as in claim 22, wherein a default value for said  
2 fraction is selected response to a bandwidth of said input port.

1 28. (Previously Added) A system as in claim 27, wherein said fraction is adaptively  
2 altered based on a presence or absence of a particular type of packet selected from among  
3 plural types of packets.

1 29. (New) A computer-readable medium carrying one or more instructions, wherein  
2 execution of the one or more sequences of instructions by one or more processors causes the  
3 one or more processors to perform the step of:  
4 sampling a set of packets at a network interface of a switch, said step for sampling  
5 including steps for adaptively altering a fraction of said packets for selection;  
6 wherein said steps for adaptively altering a fraction of said packets for selection include  
7 steps for  
8 maintaining a queue of selected packets; and  
9 altering said fraction in response to a length of said queue.

1 30. (New) The computer-readable medium of claim 29, wherein said steps for  
2 adaptively altering a fraction of said packets for selection include steps for  
3 measuring a frequency of packets of a known type within said selected packets;  
4 altering said fraction in response to a load imposed by said steps for measuring.

1 31. (New) The computer-readable medium of claim 29, wherein said steps for  
2 adaptively altering a fraction of said packets for selection include steps for altering said  
3 fraction in response to two or more factors responsive to said selected packets.

1           32. (New) The computer-readable medium of claim 29, wherein the computer-  
2 readable medium further includes sequences of instructions for performing steps for  
3 determining a frequency of packets of a known type within said selected packets.

1           33. (New) The computer-readable medium of claim 32, wherein the computer-  
2 readable medium further includes sequences of instructions for performing steps for  
3 determining an error range for said measured frequency.

1           34. (New) The computer-readable medium of claim 32, wherein the computer-  
2 readable medium further includes sequences of instructions for performing steps for  
3 setting a control parameter;  
4 sampling said received packets in response to said control parameter, to  
5 provide a queue of sampled packets;  
6 comparing a length of said queue with a threshold;  
7 altering said control parameter in response to said threshold.

1           35. (New) The computer-readable medium of claim 34, wherein said control  
2 parameter is a fraction of said received packets to sampled for said queue.

1           36. (New) The computer-readable medium of claim 34, wherein said threshold  
2 includes at least one of: a lower bound for said length, an upper bound for said length.

1           37. (New) The computer-readable medium of claim 34, wherein said threshold  
2           includes a lower bound for said length and said steps for altering said control parameter  
3           operate to lengthen said queue in response to said steps for comparing.

1           38. (New) The computer-readable medium of claim 34, wherein said control  
2           parameter is a fraction of said received packets to sample for said queue;  
3           said threshold includes a lower bound for said length; and  
4           said steps for altering said control parameter decrease said control parameter  
5           in response to said steps for comparing.

7 3  
1           39. (New) The computer-readable medium of claim 34, wherein said threshold  
2           includes an upper bound for said length and said steps for altering said control parameter  
3           operate to shorten said queue in response to said steps for comparing.

1           40. (New) The computer-readable medium of claim 34, wherein  
2           said control parameter is a fraction of said received packets to sample for said  
3           queue;  
4           said threshold includes an upper bound for said length; and  
5           said steps for altering said control parameter increase said control parameter in  
6           response to said steps for comparing.

1           41. (New) The computer-readable medium of claim 34, wherein said steps for  
2           altering said control parameter operate to maintain said control parameter constant for at  
3           least a selected number of sampled packets.



1           42. (New) A computer-readable medium as recited in claim 34, wherein said steps  
2   for sampling do not produce skew.

F3 1           43. (New) A computer-readable medium as recited in claim 29, wherein a default  
2   value for said fraction is selected response to a bandwidth of said network interface.

1           44. (New) A computer-readable medium as recited in claim 43, wherein said fraction  
2   is adaptively altered based on a presence or absence of a particular type of packet selected  
3   from among plural types of packets.

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